

SEQUENCE LISTING



<110> Ipsen, Hans Henrick
Spangfort, Michael Dho
Larsen Jorgen Nedergaard

<120> NOVEL RECOMBINANT ALLERGENS

<130> 4305/1E144 US1

<140> 09/270,910
<141> 1999-03-16

<150> 60/078,371
<151> 1998-03-18

<160> 40

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 1

aattatgaga ctgagaccac ctctgttatac ccagcagctc g 41

<210> 2
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 2

ttaatactct gactctggtg gagacaatag ggtcgtag c 41

<210> 3
<211> 23
<212> DNA
<213> Artificial Sequence
<223> primer

<400> 3

ttagacccccc tctgttatcc cag 23

<210> 4
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer


<400> 4
atactctgac tctggggag aca 23

<210> 5
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 5
gttgccaacg atcag 15

<210> 6
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 6
tgagaccccc tctgttatcc cag 23

<210> 7
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 7
acagaggggg tctcagtctc ata 23

<210> 8
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 8
gataccctct ttccacaggt tgcaccccaa g 31

<210> 9
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 9
acctgtggaa agagggatc gccatcaagg a 31

<210> 10

<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 10
aacatttcag gaaatggagg gcc 23

<210> 11
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 11
tttcctgaaa tgtttcaac act 23

<210> 12
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 12
ttaagaacat cagtttccc gaa 23

<210> 13
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 13
agctgatgtt cttaatggtt cca 23

<210> 14
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 14
ggaccatgca aacttcaaat aca 23

<210> 15
<211> 23
<212> DNA
<213> Artificial Sequence

<220>

B

```
<223> primer

<400> 15
agtttgcatg gtccacctca tca      23

<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 16
tttccctcag gcctccctt caa      23

<210> 17
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 17
aggcctgagg gaaagctgat ctt      23

<210> 18
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 18
tgaaggatct ggagggcctg gaac      24

<210> 19
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 19
ccctccagat ccttcattgt tttc      24

<210> 20
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 20
ggcaactggt gatggaggat ccat      24
```


<210> 21
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 21
ccatcaccag ttgccactat cttt 24

<210> 22
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 22
catgccatcc gtaag 15

<210> 23
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 23
accacagcct ccagcgaaga atatgaaaaa tttggtatgg a 41

<210> 24
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 24
tggtgtcgga ggtcgcttct tatactttt aaaccatacc t 41

<210> 25
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 25
ccagcggcta atatgaaaaa t 21

<210> 26
<211> 21
<212> DNA
<213> Artificial Sequence


<220>
<223> primer

<400> 26
gtcggaggtc gccgattata c 21

<210> 27
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 27
ggctaatacg tgtcaatatg gtcacgatac ttgcagggat g 41

<210> 28
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 28
ccgatttagtt acagttatac cagtgcatac aacgtcccta c 41

<210> 29
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 29
tgtcaagctg gtcacgatac t 21

<210> 30
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 30
tttagttacag ttgcgaccagt g 21

<210> 31
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 31
ccagcggcta atataaaaaa t 21

<210> 32
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 32
catattagcc gctggaggct g 21

<210> 33
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 33
tgtcaagctg gtcacgatac t 21

<210> 34
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 34
gtgaccagct tgacatttgat t 21

<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 35
attcatcagc tgcgagatag g 21

<210> 36
<211> 480
<212> DNA
<213> betula verrucosa

<400> 36
ggtgtgttta attatgagac tgagaccacc tctgttatcc cagcagctcg actgttcaag 60
gcctttatcc ttgtatggcga taacctcttt ccaaagggtt caccggcaagc cattagcagt 120
gttggaaaaca ttgaaggaaa tggagggcct ggaaccatta agaagatcag ctttcccga 180
ggcctccctt tcaagtacgt gaaggacaga gttgatgagg tggaccacac aaacttcaaa 240
tacaattaca gcgtgatcga gggcggtccc ataggcgaca cattggagaa gatctccaac 300
gagataaaaga tagtggcaac ccctgatgga ggatccatct tgaagatcag caacaagttac 360
cacaccaaaag gtgaccatga ggtgaaggca gagcaggtta aggcaagtaa agaaatgggc 420
gagacacttt tgagggccgt tgagagctac ctcttggcac actccgatgc ctacaactaa 480

<210> 37

<211> 159
<212> PRT
<213> betula verrucosa

<400> 37
Gly Val Phe Asn Tyr Glu Thr Glu Thr Ser Val Ile Pro Ala Ala
1 5 10 15
Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro Lys
20 25 30
Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn Gly
35 40 45
Gly Pro Gly Thr Ile Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
50 55 60
Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys
65 70 75 80
Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
85 90 95
Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser
100 105 110
Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
115 120 125
Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu
130 135 140
Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn
145 150 155

<210> 38
<211> 615
<212> DNA
<213> vespula vulgaris

<400> 38
aacaattatt gtaaaaataaa atgtttgaaa ggaggtgtcc atactgcctg caaatatgg 60
agtcttaaac cgaattgcgg taataaggta gtggtacccat atggctcaac gaaaacaagag 120
aaacaagaca tcttaaaagga gcacaatgac ttttagacaaa aaattgcacg aggattggag 180
actagaggtta atcctggacc acagcctcca gcgaagaata tgaaaaattt ggtatggAAC 240
gacgaggttag cttatgtcgc ccaagtgtgg gctaataatgtt gtcaatatgg tcacgatact 300
tgccaggatg tagccaaata tcaggttggaa caaaacgttag ccttaacagg tagcacggct 360
gcttaatacg atgatccagt taaaacttagtt aaaatgtggg aagatgaagt gaaagatttat 420
aatcctaaga aaaagtttc gggaaacgac ttctgtaaaa ccggccatta cactcaaattg 480
gtttgggcta acaccaagga agttgggtgtt ggaagtataa aatacattca agagaaatgg 540
cacaacattt accttgtatg taattatggaa cccagcggaa actttaagaa tgaggaactt 600
tatcaacaa agtaa 615

<210> 39
<211> 204
<212> PRT
<213> vespula vulgaris

<400> 39
Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
1 5 10 15
Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Val
20 25 30
Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His
35 40 45
Asn Asp Phe Arg Gln Lys Ile Ala Arg Gly Leu Glu Thr Arg Gly Asn

50 55 60
Pro Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn
65 70 75 80
Asp Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr
85 90 95
Gly His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn
100 105 110
Val Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Val Lys
115 120 125
Leu Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys
130 135 140
Lys Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met
145 150 155 160
Val Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile
165 170 175
Gln Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser
180 185 190
Gly Asn Phe Lys Asn Glu Glu Leu Tyr Gln Thr Lys
195 200

<210> 40

<211>38

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 40

ccgctcgaga aaagaaaacaa ttattgtaaa ataaaaatg